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Identity Parades

The receipt of an enquiry asking us for advice as to how to sharpen-up the letters formed on metal strips—such as one makes for oneself on railway stations after placing a penny in the slot—served to remind us how important the lettering of castings can be. For instance, the judicial outcome of an inquest on a defective casting was that it had been made the "wrong side up." Everybody agreed, but the foreman protested that this wrong choice was governed by the stripping arrangements consequent upon the position of the name plate. There are from time to time complaints that customers' serial numbers have been wrongly reproduced, and rejections are rightly threatened. Is it really necessary, we would ask, for engineers to saddle the foundry with such identification numbers as 87C—199852 B3? Such excessive length is usually the cause of mistakes, but such "mistakes" can not and should not form a disclaimer in standardised "conditions of sale." Some years ago we had occasion to complain to the chairman of a large foundry company, because we noticed in a brand new concern which was being inspected by numerous technical institutions, that in a battery of presses the letters of the name plate were so defective as to give the impression of third quality castings. Many good foundries realise the value of trade-marking their wares by a lettered device, but to be an advertisement it must be well done. If, however, its positioning causes moulding problems, then it is preferable to make a separate casting of the name and attach this to the finished article.

All castings, for the sake of control, should carry identification marks to enable posterity to discover the date of manufacture and the man or men who made them. It would also help if, when using alloys, the B.S.I. specification number were included. This would be of great help in the non-ferrous foundry industry when the casting ultimately finds its way to the scrap yard. Obviously, one must keep the lettering to a minimum, for with each addition, as in the case of customers' numbers, mistakes are liable to creep in, to say nothing of unsightliness. Whilst the standard pattern letters are not too bad, an artist of the calibre of Eric Gill, who increased both the legibility and artistic appearance of printers' type, could do much to effect an improvement. Generally speaking, one cannot fail to appreciate the plates used by both the British and American machine tool manufacturers. There is also much merit in the designs, used by the makers of weighing machines and lawn mowers. For the manufacturers of stoves and grates, discretion must be used. If for the cellar or kitchen, the makers can usually allow themselves some latitude, but for living rooms it would be impertinence to introduce an advertisement.

Related to this subject of marking castings is the identification by colouring. Here the position is chaotic, for just in one area the following is happening. Firm "J" colour their Ni-Resist castings and scrap green and their chrome iron red. Firm "B" use yellow for Ni-Resist, whilst "H" use red for chrome iron. Again, quite a few firms employ purple for irons containing molybdenum. For internal use, it is not of major importance, but trouble has arisen when grey and alloyed cast iron have been used for castings off identical patterns. On receipt by the customers, both type received the same heat treatment, with disastrous results. Surely it is now time a common-to-all system was devised.

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The Iron and Steel Institute

Autumn Meeting, 1947

The Autumn Meeting of the Institute will be held on Wednesday (all day) and Thursday (morning only), November 12 and 13, under the chairmanship of the President, Dr. C. H. Desch, F.R.S. The sessions will take place at the offices of the Institute, 4, Grosvenor Gardens, London, S.W.1.

Programme

WEDNESDAY, NOVEMBER 12, 1947

10.0 a.m.—Official business, including the election of Members and Associates.

10.15 to 11.45 a.m.—Joint discussion on:—"Hydrogen and Transformation Characteristics in Steel," by J. H. Andrew, H. Lee, H. K. Lloyd and N. Stephenson, and "Hydrogen in Steel Manufacture," by C. Sykes, F.R.S., H. H. Burton and C. C. Gegg.

11.45 a.m. to 1 p.m.—Joint discussion on:—"Brittle Fracture in Mild-steel Plates," by W. Barr and Constance F. Tipper; "The Effect of the Manganese-carbon Ratio on the Brittle Fracture of Mild Steel," by W. Barr and A. J. K. Honeyman, and "Some Factors Affecting the Notched-bar Impact Properties of Mild Steel," by W. Barr and A. J. K. Honeyman.

1.0 p.m. to 2.30 p.m.—Buffet luncheon in the Library of the Institute (tickets 6s. each).

2.30 to 4.15 p.m.—Joint discussion on:—"A Note on Variations in Producer Gas Quality," by J. E. de Graaf; "The Distribution of Fuel in Gas Producers," by M. L. Hughes, and "Experiments on Gas Flow in Producer Fuel Beds," by M. L. Hughes.

4.15 to 5 p.m.—Discussion on:—"A Photo-electric Roof Pyrometer for Open-hearth Furnaces," by T. Land.

THURSDAY, NOVEMBER 13, 1947

10.0 a.m. to 10.45 a.m.—Discussion on "The Fluidity of Steel," by R. Jackson, D. Knowles, T. H. Middleham and R. J. Sarjant.

10.45 to 11.45 a.m.—Discussion on "The Mechanism of Carbon Removal by Oxidation from the Bath in the Open-hearth Furnace," by A. H. Jay (deceased). To be presented by G. E. Speight.

11.45 a.m. to 12.45 p.m.—Discussion on "Some Aspects of the Refining of High-phosphorus Iron," by W. L. Kerlie.

"Romance of Carborundum"

Recently, at the Grosvenor Hotel, Manchester, the Carborundum Company, Limited, of Trafford Park, showed a full-length "documentary" in colour. It covers the early history, Niagara Falls as supplying power, the arrival of the raw material in Manchester, a tour of the Trafford Park works and interesting industrial applications; music was specially composed by Eric Coates. Our Manchester representative reports that both as a semi-technical documentary and as an artistic production, this film is outstanding.

Forthcoming Events

(Secretaries are invited to send in notices of meetings, etc., for inclusion in this column.)

NOVEMBER 10.

Institute of British Foundrymen.

Sheffield Branch:—"The Surface Drying of Moulds," by F. Cousans At the Royal Victoria Hotel, Sheffield, at 7.30 p.m.

Institution of Production Engineers.

Halifax Section:—"Full Employment in Industry" by A. Hopkinson, at the White Swan Hotel, Halifax, at 7 p.m.

Institute of Metals.

Scottish Section:—"Commentary on a Visit to America," by A. Craig MacDonald, B.Sc., at the Institution of Engineers and Shipbuilders, Glasgow, at 6.30 p.m.

NOVEMBER 11.

Institute of British Foundrymen.

London Branch—Slough Section:—"Precision Castings for General Engineering Purposes," by F. Hudson, at the Lecture Theatre, High Duty Alloys, Limited, Slough, at 7.30 p.m.

Lancashire Branch—Burnley Section:—Meeting at Burnley Municipal College, Ormerod Road, Burnley, at 7.30 p.m.

NOVEMBER 12.

Institution of Production Engineers.

Sheffield Section:—"Foreman and their Duties," by E. Mensforth, M.I.P.E.

Manchester Graduate Section:—"High Grade Cast Iron Castings," by E. Longden, M.I.Mech.E., at the College of Technology, Sackville Street, Manchester, at 7.15 p.m.

NOVEMBER 12 and 13.

The Iron and Steel Institute.

Autumn Meeting, at 4, Grosvenor Gardens, London, S.W.1 (details on this page).

NOVEMBER 13.

Institute of British Foundrymen.

East Midlands Branch—Lincoln Section:—"The Metallurgist in the Foundry," by W. H. Salmon, at the Lincoln Technical College, at 7.15 p.m.

Institute of Metals.

London Section:—"Some Aspects of Metal Refining," by Prof. C. W. Dannatt, A.R.S.M., D.I.C., at the Royal School of Mines, South Kensington, London, S.W.7.

NOVEMBER 14.

Institute of British Foundrymen.

Middlesbrough Branch:—"The Application of the Hydroblast to Cleaning Castings and Sand Recovery," by W. Y. Buchanan, at the Cleveland Scientific and Technical Institute, Corporation Road, Middlesbrough, at 7 p.m.

Institute of Welding.

North London Branch:—"Training for Industry," by Prof. D. Hanson, D.Sc., at Mansion House, 26, Portland Place, London, W.1 at 7.30 p.m.

NOVEMBER 15.

Institute of British Foundrymen.

Bristol and West of England Branch:—"Aluminium Alloy Founding," by J. Morgan, at the Grand Hotel, Broad Street, Bristol, at 3 p.m.

LORD RAYLEIGH, F.R.S., officially opened the new physics laboratories of the British Iron and Steel Research Association at Battersea, London, on October 22.

Nottingham Discussion

The Influence of Production Flow on Moulding Methods*

By R. C. Shepherd

Before asking members to start the discussion, the Chairman (Mr. J. W. Gardom) said he would take the opportunity of thanking Mr. Shepherd on behalf of the Institute for his very excellent paper. The attendance at the session showed the great interest taken in that type of work, and as there would be a change of Chairman before the end of the meeting, he felt he must thank Mr. Shepherd there and then.

DISCUSSION

Handling Large Boxes

Mr. F. DUNLEAVY said that on page 13 of the Preprint under the heading "Single Operation Machine Mounding," it was stated "Fig. 39 illustrates a typical completely mechanised twin unit laid out for the repetition production of 41 in. x 35 in. moulds." This was a fairly big box for a moulding machine, and what he would like to ask was how many men were involved in that system, and how were they positioned. As he imagined it from these figures, the operators must be making the moulds at the rate of 65 or even 70 per hour. He might be completely wrong, but to his mind it was not so much the making of the mould as the placing and removal of the boxes, and he wondered if in the American system they had something which we in this country did not possess. Also, could Mr. Shepherd inform him of the type of job made in the box, because there appeared to be quite a large amount of sand used. Information as to the method of feeding sand into the box and the rate of delivery would help to complete the picture.

Production Personnel

Mr. R. C. SHEPHERD assured Mr. Dunleavey that the production figures given were the average production of that particular unit, or pair of units, throughout the day. They were not just short period production figures. The unit was being operated in one of the largest of the American foundries that he had visited and it was a foundry that enjoyed a well-merited reputation, even in America. As with Mr. Dunleavey, these production figures had impressed him, and that was why he had taken particular note of them.

The problem of sand supply, he thought, was helped very considerably by their only having to supply two operating points in two systems. They were not attempting to supply that huge volume of sand to multiple operating points, and that, he had found, generally was of very great assistance in ensuring that a continuous supply of sand was always available at the ramming stations. System sand, of course, was used throughout; there was no time for facing sand application. The handling of this size of box was very neatly done. It was a mechanical problem and had, therefore, been tackled as a mechnical handling problem. To lift the boxes on and off the machines an overhead hoist on a runway was used. (They were American moulding machines, by the way, and very good.) Transfer of the top part from the end of the cope conveyor for closing on the drag conveyor was satisfactorily effected with a central jib crane, as shown in Fig. 39.

Mr. Shepherd, referring to the number of men involved, said there were not a great many, as far as he could remember there were two on each machine, either one or two men finishing and core setting and probably a man closing on each unit, and, as indicated on the illustration, the closed mould was put on to the mechanical conveyor completely finished and ready for casting. No runner bushes were used; they scooped the top out for a runner bush. As far as he remembered, he believed the unit was laid out for a simple type of crankcase, or bedplate. There was a fair amount of coring up, but that was synchronised very well. Everything possible was laid on in the way of jigged cores and in some cases cores were assembled, which simplified the coring up operations and resulted in considerable labour saving.

Applicability of Quantity Production Methods

Mr. H. J. YOUNG said that while the Author ranked among the leading scientific ironfoundrymen of this country, his experience like that of everyone else was limited by its nature and width, a fact which had to be put in the scales when weighing the applicability to any one foundry of the medicine which the Paper prescribes in greater or lesser doses for all types of foundries. Compare, for example, the outstanding differences between Ruston & Hornsby and the one controlled by the speaker, the latter moulds from some 100,000 patterns passing through the foundry at the rate of about 300 weekly and supplies the castings for five or six entirely different trades, and was situated in an industrial quarter of Manchester. Compare again the difference between these and foundries not connected with any engineering establishment, making from "unknown" patterns as best they could, and in normal times as cheaply as they could. Some members might be aware of a very large and well-known sand-foundry which although mass-producing had barred mechanisation and, apparently, not yet regretted it. How far to go depended on many factors and circum-

*Discussion of the Paper presented by the author at the Institute of British Foundrymen's Annual Conference and published in the JOURNAL, September 11, 18, 25. (Title Abridged.)

Production Flow

stances. It was by no means easy to be wise in any one case.

Ironfoundries belonging to large engineering firms could justify the overhead created by mechanisation. They required many castings quickly and were able to face up to skilled ironfoundry maintenance becoming almost as great a problem as skilled irontoundry moulding. Unattached foundries could not do this.

The Author appeared to favour roller-conveying, but his (the speaker's) experience was that many types of moulds could not be roller-conveyed without increasing the percentage of bad castings. Among the audience there happened to be a member who had invented a bottom board to smooth out the jolts caused by roller-conveying. Concluding his remarks, Mr. Young referred to the Speedslinger and said he didn't see the necessity for providing a seat there.

Preventive Maintenance

MR. SHEPHERD, referring to the question of maintenance, said they all knew as the amount of mechanism was increased in foundries more maintenance engineers were required, but he felt that many of the mechanical troubles experienced by factories were mainly their own fault, due to lack of preventive maintenance. Equipment was not examined and looked after until something happened and unless some scheme or form of preventive maintenance was operated he thought maintenance costs would always be high. Also, maintenance men themselves could not be expected to work efficiently because under emergency conditions they had to work in a state of urgency, and were usually badgered by the foreman moulder to do the job quickly to get the plant working again as sooon as possible. If elementary preventive precautions were taken, all that might be avoided. He had made reference in the Paper to the fact that extra maintenance costs must be taken into account when consideration was being given to the amount of capital expenditure and the return that was expected from the plant going in. In the States an eight-hours shift was usually operated, which before the war was for a five-day week, but during the war a six-day week of 48 hours was worked. Even in America, as in this country, the conditions of working varied very considerably from plant to plant. There were good plants and bad plants, and he personally would not like to recommend that any attempt should be made here to copy any of the bad plants or to ask our men to work under the same conditions. Although some of them were bad, some of the newer plants were effecting improvements in the way of providing more room and by revising their equipment and operational precedure. That point, he thought, was very much to the fore in America and was being tackled in all their modern progressive plants. He did want to emphasise the point that everything in America was not good. When they remembered that some of the plants, particularly in the automobile industry, were installed and equipped many years before the war, they would realise and agree that many of them were out of date, and Americans were only waiting for an opportune time to put some of those conditions right. The tendency was not to rely on extra effort to obtain increased production per man hour, but progressively to improve methods and equipment as one hoped to do in this country. This was the crux of the lesson he was trying to point out in his Paper and should be the aim of every foundry technician.

Mr. Shepherd said he was very interested to note Mr. Young's remarks in connection with roller conveyor. He had not personally heard of such a bottom board, but if there was such a thing in being, it should prove invaluable. In his own scheme, movement of closed moulds on the roller conveyor caused some difficulties under certain conditions, but he knew of plants in this country where moulds were moved very considerable distances on well-designed and well-maintained roller conveyors after closing, without much trouble.

The Speedslinger

Mr. Shepherd said every operation of the Sandslinger was operated with an aeroplane joy-stick, so that the traversing movement of the Sandslinger up and down the shop was fairly easy. The movement of the Sandslinger head in any direction, sideways, left or right, or up and down, was controlled by this joy-stick. All the operator had to do was to sit on the saddle seat provided above the machine head and manipulate the joy-stick, and he could move himself and the machine head to any particular position over a big box at will. Mr. Shepherd felt, having seen this machine in operation, if he had to operate it he would much prefer to sit than to stand. The operator he had seen was never idle for a moment and ample sand was provided. He was away from the dust as his head was right above the operation. The Sandslinger head was between his legs, so that he had a matter of 2 ft. 6 in. or 2 ft. 9 in. between his own head and that of the machine. Under those conditions, he thought it was quite obvious an operator would receive far less dust and incur far less danger from flying particles, either metal or sand, than he would if his head were level with the slinger head. In the particular case described, the Sandslinger removed the physical effort from the man, but the operator had to be mentally alive as he was moving the whole time.

Roller Conveyors

MR. R. SPRIGGS, speaking with reference to the roller conveyor, said most foundries envisaged its installation, but he would never recommend anyone to move closed moulds on rollers before pouring except in a dead straight line. Some did attempt to go round curves or transfer from one rail to another before they poured, and that was where the high percentage of wasters occurred. There were various methods of dealing with very delicately cored moulds. He had noticed some people making cylinder blocks containing many cores; the moulds were carried on steel trays, the trays being lined with a full inch of sand, and that sand formed a cushion for the moulding box, and then they were moved down in long lines on roller conveyors without any trouble. That was done be-

cause of the nature of the mould; the coring was delicate and costly. Another method he had seen involved the use of two boards, one above the other, connected by spiral springs, so that jarring action was not transferred from the bottom board to the top board. The moulds did rock about, but it was a gentle movement, and this method was said to eliminate wasters, though he himself did not recommend that principle, as it seemed rather a poor way of doing the job. A fundamental consideration with roller conveyors, in his opinion, was never to attempt to do too much with them. Moulds should be moved in batches, with not much slope, but just enough to enable a line of moulds to be moved slowly. Bumping must be avoided, and they should be moved only in a straight line before pouring. With those factors kept in mind, he felt there was a useful field in most foundries for a roller conveyor.

Mr. Spriggs also had seen the Speedslinger in operation in the States, and they should bear in mind that it was electro-hydraulic. The hydraulic operation gave beautiful control. It was used for very big boxes and rammed at the rate of about 60 tons an hour, whereas the ordinary Sandslinger was usually 15 tons an hour. The machine was used for very big work, and without the operator mounted on the head, it would be difficult to get at the job. The mounting of the operator was just a natural way to do it. The ease and speed with which he located himself was a revelation. As Mr. Shepherd said, he just worked a joy-stick. It was usually a young man who was most expert, and Mr. Spriggs had seen them go from one big box to the other and position themselves in less time than it took to talk about it. He had been interested in the machine on behalf of his firm with a view to its possible manufacture over here, but he had come to the conclusion that whilst it might have a very big field in America, the field for it here would be so restricted that one could not look forward to making many machines per annum, but it was certainly a very wonderful machine for large moulds.

Maintenance had been touched on, and he had one criticism to make. Mr. Shepherd had shown them one way of making a power-driven moulding conveyor cheaply, but Mr. Spriggs was sure if they put that job into their foundry they would have maintenance charges every Monday morning. If might be satisfactory for moving orange boxes or pieces of wood moulding. but it was useless for the foundry. It was true a man might invent such a thing in his own foundry, and because it was his own child, he would make it work, but if any responsible manufacturer supplied such a contraption to the foundry, he would be discredited.

MR. G. W. BROWN said most foundrymen today had either done some mechanisation or were contemplating doing so, and many knew what a hard and thorny path they had to tread. He wished to have Mr. Shepherd's views about spillage, both of sand and metal (not with regard to any particular plant, but in general), about shear pins on the motors, and about magnetic separators; also, on hopper design and control, belt upkeep, and he would like a summary of types of conveyors to be made.

Sand and Metal Spillage

MR. SHEPHERD agreed that sand spillage was a difficulty; all of them had tried ways and means of overcoming it, and the best way that Mr. Shepherd knew was preventive maintenance. Preventive maintenance was better than cure, and possibly the only thing that was likely to prove effective. There were all sorts of arguments against, and in favour of, troughed belts and the ordinary flat belt with the side guards. Though there were many schools of thought, he personally favoured troughed belts if they were inclined, but even then that did not stop spillage unless there was some means of efficiently scraping the belt as it went round the head pulley. With regard to metal spillage, that was largely a question of ladle design and the method and operation of casting. If casting was carried out on a moving conveyor, spillage was more likely to occur than it was if the job was cast stationary. In his Paper they would notice he was neither advocating casting on the move or in a stationary position. It all depended on the circumstances and the job, and perhaps Mr. Brown and one or two other speakers were largely influenced in their remarks by the fact that their operations were completely mechanised, whereas in the Paper he had attempted as far as possible to concentrate more on the application of mechanical equipment and production flow methods in those foundries that did not lend themselves so readily to complete mechanisation as did the mass production foundry. So that when it came to a question of spillage in the pouring of metal, a lot depended on conditions, and yet few conditions were such that spillage of sand and metal was altogether avoidable. Thus, some means or other had got to be found in order regularly to clean the place and not allow spillage to pile up into dirty, untidy heaps, which gave visitors a bad impression.

Shear Pin Breakage

The question of the breaking of shear pins, he thought, might be combined with the question as to types of conveyor. The types of conveyor, again, depended largely on conditions. Obviously, if one was working under mass production conditions, one would necessarily consider installing the mechanical conveyor, but there were many jobs where a roller conveyor could be satisfactorily used, particularly if the work was such that the job could be cast before it was moved far. In connection with the shear pins on mechanical conveyors, he had operated one, with about 100 feet centres, since 1935, and the trouble in that direction had been negligible. They had broken shear pins, but had usually found somebody had stuck something in or allowed something to get in that had caused jamming. In Mr. Shepherd's opinion, if the machine was operating as it was designed to operate, there should be little or no trouble with broken shear pins.

E

Production Flow

Magnetic Separators

On the point of magnetic separators, there again he could sympathise with Mr. Brown, because he himself had had trouble in that respect when they had put up their small mechanised foundry in 1935. At that time the overband magnetic separator had not been generally considered for foundries, and they had had to rely on the magnetic head pulley type. They soon found that the magnetic head pulley did not satisfactorily separate the sand from the metal, that is to say, there was a fair amount of sand contamination in the separated metal, but they were hoping that the introduction of the overband type of magnetic separator was going to overcome this trouble.

Sand Hoppers

There has been a very outstanding Paper written on hopper design and control, and he thought that had proved what most of them had already experienced, that there was no really satisfactory design of sand hopper, or at least, if there was, he had no knowledge of it. He had heard of one suggestion that might work, where the custom of rapping hoppers damaged the steel casing. This was to leave an opening in the hopper side and insert a rapping plate of thick rubber. This could be deliberately rapped without causing any damage to the hopper sides, whenever sand sticking was experienced.

Mr. Shepherd took it that by the control of sand hoppers Mr. Brown meant ensuring a regular supply of sand to a multiple number of points along a common belt. He thought there were now mechanical ways and means of doing it, but while he had no experience of them probably other people had. His opinion was where there were a multiple number of points it generally paid to operate the ploughs manually from overhead. His own firm operated about ten points on an overhead belt conveyor. The machine men operated the overhead ploughs from the floor, but they occasionally had trouble with men at the far end of the line not getting their fair share of sand and this sometimes ended in a dispute between the foreman and the men, but generally speaking it worked fairly well.

His own experience of belts was that there was not much upkeep, providing the metal could be kept off them. If a belt was used from the knockout, or at any point where it was likely to carry metal flash or castings or bits of runners, then one was likely to get torn belts. The lesson to be learned there, of course, was to attempt to put the magnetic separator in the sand return system at the beginning if possible before the material got on to the belt.

Mr. H. G. HALL said that on reading the Paper he had been much impressed by one point, which he believed worthy of mention, and that was the necessity of having planning supervisors in order to save wastage of man hours, plus an efficient and well-organised planning system. He suggested that in the future, even in the case of departments employing 200, 300 or 400 men, men would be needed as chief planners, and that firms would be prepared to pay high salaries for such men. He believed one of the latest developments of American practice was the introduction of highly organised planning.

(*To be concluded.*)

Correspondence

[We accept no responsibility for the statements made or the opinions expressed by our correspondents.]

A CORE GOES AWRY

To the Editor of the FOUNDRY TRADE JOURNAL.

SIR,—Mr. Sergeant's letter which appeared in the JOURNAL of October 9 suggesting a wrought iron tube filled with rammed sand, as a substitute for a sand core is a very interesting one. Certainly there would be no risk of its moving out of centre as happened with the sand core described in the article "A Core Goes Awry." But one or two questions came to mind when considering Mr. Sergeant's method.

What thickness of metal is the tube? As the face of the iron surrounding the tube will be chilled what effect will this have when the casting is being bored out? Is the core vented the usual way; and is there any difficulty in removing the tube when the casting is cold?

Yours, etc.,
W. GUDGEON.

67, Acregate Lane South,
Preston.
October 15, 1947.

House Organ

Winget Life

Autumn Number, published by Winget, Limited, Rochester, Kent.

This house organ places much stress on employer-employee co-operation. That much good can come of it is shown by the extracts from five letters dealing with the layout of some proposed extension to the works. Notes on the progress of the boys attending the Meehanite school and of visits by the foundry staff to other foundries are typical of the forward-looking attitude of the directorate. The magazine is certainly well produced.

—/G.S.

For 33 years, recipients of letters from our advertising department will have noticed the reference —/G.S. These initials stood for Miss Gwen Smith, who has now retired. To mark the occasion, Mr. Barrington Hooper, C.B.E., managing director of THE FOUNDRY TRADE JOURNAL, organised a cocktail party in the general office at 49, Wellington Street. On behalf of the directors, Mr. Sidney Walton, C.B.E., presented Miss Smith with a Georgian cake dish, and Mr. G. Bidgood, for the staff, some items of jewellery and a lamp shade. About 100 members of the staff were present to wish Miss Smith happiness in her retirement.

Mass Production of Cast Steel Bomb Bodies*

By Percy H. Wilson, O.B.E., M.I.Mech.E.

(*Continued from page* 180.)

Sand Handling and Preparation

(b) Core Sand

Three No. 2 August-Simpson mixers were provided for mixing the core sand in batches of 730 lb. with a total mixing time of 4½ min. The following was the mixture used:—

Mixed sand from the sand coolers	730 lb.	100 parts
Cereal binder	10½ lb.	1.4 ,,
Water	25½ pts.	4.35 ,,
Linseed oil	6 pts.	0.96 ,,

The operator opened the batch hopper and allowed the measured sand to fall into the mill. The cereal was first added and the whole mixed dry for ½ min. The water was then added and mixing continued for 2½ min. Oil was added last and the mixing completed in a further 1½ min., following which the sand was discharged and conveyed by belt to hoppers over the automatic core-making machines. The moisture content at the core machines was 3.6 per cent. The water and oil additions to the sand were very accurately controlled by the following method:—

Cylindrical tanks were provided for both water and oil with a gauge glass giving visual indication of the quantities of liquid in the tanks. A graduated scale was fitted and the operator opened a spring-loaded valve until the liquid reached the required level, the valve then being closed. To empty, a spring-loaded valve, which was fitted to the bottom of the tanks, was opened and the contents flowed into the mill. The properties of the core sand mixture were as follows:—

Permeability:		
Green ...	110	
Baked ...	180	
Compression:		
Green ...	4 lb.	sq. in.
Baked ...	400	,, ,,

Core Production

(a) Core Bar Wrapping

The core bars were constructed of steel tubing, 4 in. dia., drilled with vent holes. There was a finned base into which was screwed a taper pivot-pin, and the head of the bar was a steel casting bored to receive the centring bars and allow the escape of gases generated during casting. Two grooves were machined round the head, for the purpose of hanging the cores for transportation, specially constructed hooks being provided for this purpose on the core-drying bogies and conveyors.

The core bars were wrapped with 1-in. wood-wool core rope for a length of 25 in. from the bottom of the bar, on upright motor-driven machines with foot-operated control. Two ¼-in. square wooden pegs were pushed through the bar to prevent movement of the wood wool during subsequent operations. About ten turns of thin twine were wrapped over the base of the bar from a point approximately 1 in. above the pivot-pin, carried over the wood wool and secured. This string formed a surface to support the nose portion of the core, which invariably cracked and parted from the body of the core until this practice was developed. After wrapping, the upper part of the wood wool was secured by sprigs; the core bars were suspended on an overhead chain conveyor and singed. This conveyor, which had a 538-ft. circuit, took the bars within easy reach of the core-making machines.

(b) Coremaking

Eight automatic ramming machines were provided. Each of these consisted of a sand storage hopper with a disc base, which fed the sand down suitably-positioned chutes to the ramming stations, an automatic rammer and a turntable, on which three core boxes were

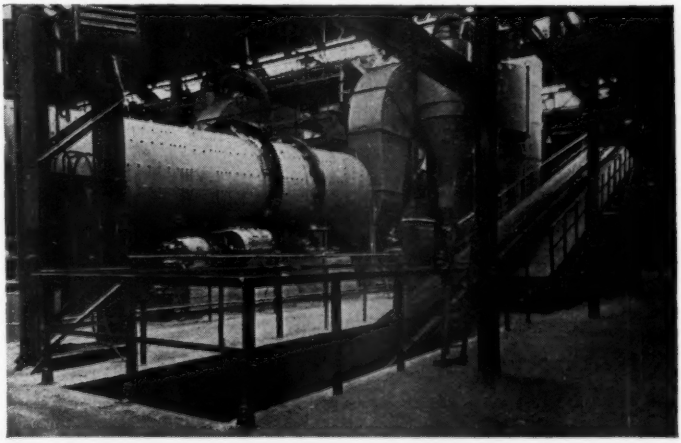

FIG. 11.—ONE OF THE ROTARY SAND COOLERS AND DUST EXTRACTION PLANT.

*Paper presented by the President of the Institute of British Foundrymen at the Nottingham Conference. (Title Abridged.)

Mass Production Bombs

situated. Each core box was made in two hinged sections, one above the other. They were closed by quick-release catches at the first and second ramming stages, and two separate hinged sections were mounted on the other two at the third stage.

At the first station, the core bar was dropped into the box, and the head of the bar was centralised by means of a short length of tube fixed to the main frame by means of a sleeve. The nose of the core was rammed by hand, and the second section of the core box clipped into place.

At the second station, the main body of the core was rammed with the automatic rammer. This was a vertically reciprocating rammer head of 7 in. dia., connected to a driven crank through friction bushes, which allowed the rammer head automatically to adjust itself to the rising height of the sand in the core box, the friction grip arrangement controlling the density of the rammed core. The turntable was pushed round by hand until it reached the correct position, when it was fixed by a dog, which was pushed into a slot on the turntable. After centralising the bar, the rammer was pulled down to the level of the sand already rammed, and both rammer and sand feed started, the box being

FIG. 12.—WRAPPING WOOD WOOL ROPE ON THE COREBARS.

FIG. 13.—ONE OF THE COREMAKING MACHINES, SHOWING THE COREBOXES.

mechanically rotated during ramming. The body of the core was completely rammed in 55 to 60 secs., and the rammer was lifted above the core bar head so that the core box could be moved to the next station. Here, the final sections of the core box were clipped into place and ramming completed by pneumatic rammer, after which the box was returned to the first station for stripping.

The core was removed from the box by a small balanced jib crane with a brake which held the core in position whilst being painted. The following paint mixture was brushed on by hand:—

Molochite	224 lb.
Bentonite	20 lb.

Mixed with water to a Sp. Gr. of 1.45.

The core was then placed on the core-drying bogie, which could accommodate ten cores on arms mounted on a rotating spindle.

(c) *Core-drying Stoves*

Four core stoves were provided and used when the foundry was engaged on the production of thick-section G.P. bombs. After the changeover to the thinner section M.C. bomb, it was found that the work could be carried out in one stove only. The reason for this was that a skin baking to a depth of $\frac{1}{8}$ to $\frac{1}{4}$ in. gave the necessary degree of collapsibility in the most practicable manner, provided that the cores were used within one

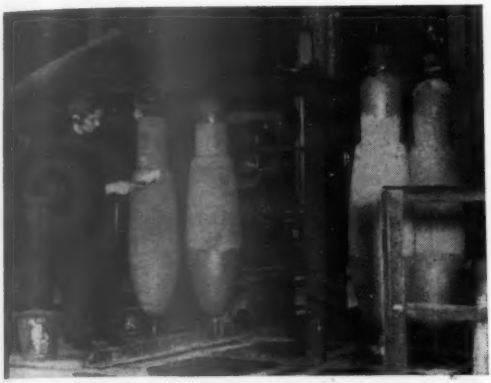

FIG. 14.—TRANSFERRING CORES FROM THE CORE-MAKING MACHINE TO THE DRYING STOVE BOGIE.

hour of baking. A second stove was used for warming up cores after a week-end or at the commencement of a shift. Each stove was divided into three zones—the preheating zone contained five bogies, the baking zone contained eight, and the cooling zone two.

Over a considerable portion of each shift, the hot air exhausted from the cooling tunnel during the cooling of the castings was conducted to the preheating zone and sufficed to maintain the temperature required in this zone. Gas was used to adjust any deficiencies in this zone and also to heat the soaking zone, the temperature being thermostatically controlled. Hot air for recirculation was drawn by fan from the cooling zone and was premixed at the burner. An indicating controller was fitted, and a motor and reduction drive was arranged to operate the air and gas valves. The temperature was controlled within plus or minus 5 deg. C.

The cores were pushed in the stove on the bogies by means of an electrically driven pusher, at intervals of 6 min.. ten cores per bogie. At this speed 100 cores per hour were being dried in one core stove, the preheating temperature was 100 to 110 deg. C. and the drying temperature in the baking zone was 200 deg. C.

The cores received a second coat of paint at the exit end of the stoves with the following mixture, after which they were allowed to stand approximately 30 minutes for the paint to dry out and harden. Each core was gauged for contour and diameter before placing on the conveyor to the core setting platform.

Core Paint.

Sillimanite 300S.	3 cwt.
Bentonite	16¼ lb.
Paint cream	27 qts.

Controlled additions of water were made until the mixture attained a specific gravity of 1.55. The paint cream was made up of 14 parts of sulphite lye and 25 parts of core cream, by weight, and had a specific gravity of 1.19.

Moulding

Four sets of nose-end patterns were provided, each set comprising two nose-end patterns with ingates, fitted to a pattern plate 2 ft. 9 in. x 2 ft. 0¼ in. Each of these was fitted to a down-draw moulding machine, by which the patterns were drawn through a stripping plate to clear the moulds before removal. The ram on these machines was operated by compressed air, at a pressure of 90 lb. per sq. in., through an oil cylinder 8¼ in. dia. fitted with a dash pot and regulating valve. Double-arm air hoists running on telpher joists were used to transfer the rammed drags to the mould conveyor.

Four sets of base end patterns were provided (two in a set) fitted to a pattern plate with loose head fitted over a sleeve. There was also an internal riser and a rod over which fireclay sleeves were placed to form the down gate. They were fitted to down-draw moulding machines, similar to those provided for the nose end patterns.

The copes were transferred to the mould conveyor, by means of air hoists. As previously stated, the moulding operations were carried out by Sandslingers.

(a) Mould Conveyor

The mould conveyor consisted of 58 steel chassis, connected by bogies. which formed an endless train, each chassis carried four plates in sections and was constructed to carry two complete moulds. The conveyor was moved forward by means of two 18-in. air cylinders, each having an 11-ft. stroke. The movement of the conveyor was controlled by a female

FIG. 15.—CORE BOGIES BEING DISCHARGED FROM EXIT END OF CORE STOVES.

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operator, from a raised platform, which gave an uninterrupted view of the whole of the operations in the moulding bay. A warning hooter was sounded before each movement of the conveyor.

(*b*) *Sandslingers*

The sand was delivered from the mixers by two conveyor belts totalling 450 ft. extending into hoppers above the Sandslingers. These hoppers were fitted with feed belts, motor driven through a reduction gearbox, the rate of sand feed being controlled by the height of gates positioned at the base of the hopper. Four Sandslingers were provided, the impeller heads being 22 in. dia., direct coupled to a 20-h.p. motor revolving at 1,450 r.p.m.

Two Sandslingers were used for ramming drags, where a hard mould was essential. The time taken per drag was 1 min. 20 secs., and all drags were inspected for mould hardness after being placed on the conveyor. The slightest deviation in mould hardness on the nose contour resulted in strains and swells. The moulds were sprayed with a weak solution of sulphite lye, one pint to one gallon of water. This reduced the possibility of erosion, by slightly hardening the mould surface during air drying which took place in the period between ramming and casting.

Two further Sandslingers were used for ramming the copes, each cope being rammed in one minute, no difficulty being experienced with mould ramming or variation in hardness. Surplus sand from the slinger operations was strickled off the moulds and fell through grids from which it was returned direct to the feed hoppers by conveyor and elevator.

FIG. 17.—PLACING MOULDING BOX ON TO STRIPPING PLATE MACHINE PRIOR TO RAMMING MOULD.

(*c*) *Mould and Ingate*

The down-gate was formed with 1¾ in. bore fireclay sleeves, through which the metal flowed to a sump 4 in. deep. Two bombs were cast in each box and the ingate was set at an angle, so that the metal entered the mould tangentially to avoid direct impingement on the core. An internal riser was situated at the junction of the two ingates to create a hot spot and to act as a feeding head. Bombs cast without this head were either porous or badly sunk under the ingate.

A metal chill was used to support the core. This chill was bolted to a cross-bar, which extended through slots in the drag and it was bored to accept the pivot pin of the core bar. The chill was centralised by a pin on the nose of the pattern and the bar was held in position by taper cotters, which were tightened before slinging commenced.

Owing to the speed of manufacture the chill retained a certain amount of heat which dried out the surrounding sand for about ½ to 1½ in. radius. To prevent this sand running on to the face of the chill, thereby causing

FIG. 16.—CORE CONVEYOR CARRYING CORES FROM DRYING STOVES TO CORING-UP STATION.

FIG. 18.—INSERTING CORES INTO DRAG PORTION OF MOULD.

defects at the nose end of the casting, both the chill and the surrounding sand were painted with a spirit-bonded aluminium paint. This technique was adopted after experimenting with a number of materials to give the necessary local hardening.

(d) Core Setting

The core conveyor gave a maximum delivery of 150 cores per hour at the core setting platform, thus giving flexibility which allowed increased mould output when required. A stop button was provided on the platform, to prevent unused cores passing this stage. The cores were taken off the conveyor in pairs by pneumatic double-arm jib cranes, which lowered them simultaneously into the moulds, the cores being guided into position by two women operators, whilst a third controlled the crane.

(e) Mould Assembly

The moulds were closed at the next station, the copes being lifted from the moulding machines by means of pneumatic double-armed radial pillar-cranes and placed on the drag. One man operated the crane, whilst two other men guided the cope into position. It was located by means of two loose closing pins which entered bushed holes provided on opposite corners of the box.

The pre-moulded runner bushes were fixed in position at the cope ramming stage, a certain amount of "bedding in" being required, which could be more expeditiously carried out with the box in this position. The cores were centred by three setting sticks and fixed in position with three oil-sand segment cores. They were then gauged before being clamped and moved forward for casting.

(f) Small Core Making

The runner bushes, centring cores and test-bar moulds were made in a special plant adjacent to the core-setting station. It comprised a Fordath sand mixer, turnover core machines and a continuous core stove. There was a pendulum conveyor which conveyed the cores to the stove for baking and thence to the various stations, where they were used to complete the assembly of the mould. The following mixture was used for these small cores, the sand being taken from the moulding sand conveyor, and having a bentonite content of 4 per cent. and 2 per cent. water:—

Moulding sand	400 lb.
Raw linseed oil	6 pts.
S.S. core compound	6 lb.
Water	3½ pts.

Mixing time, 5 mins. Baking, 2 hours at 450 deg. F. (230 deg. C.).

(g) Casting

The casting platform had the equivalent length of 8 boxes and was constructed to allow one heat to be cast without any movement of the conveyor. This permitted all other operations such as placing of moulds on the conveyor, coring up, etc., to be carried out whilst the

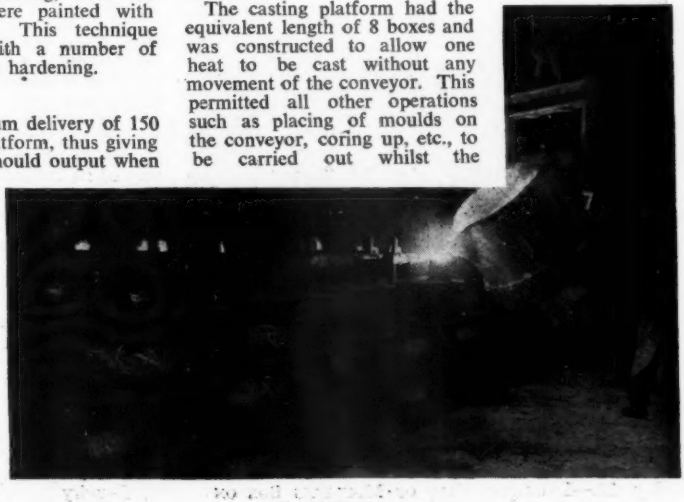

FIG. 19.—CASTING.

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conveyor was stationary. The metal was delivered to the foundry in internal spout tea-pot ladles by a 7-ton electric jib crane, which lowered the ladle of steel on to a sand bed, where it was picked up by an overhead electric telpher crane. There were two 7-ton electric telphers in constant use, running on an endless track 192 ft. long.

During transfer from the converters, a certain amount of slag formed in the tea-pot spout and this was poured on the bed before the metal was taken to the casting platform. When two boxes of bombs had been cast, a sample for analysis was poured and a test-bar was cast in an oil-sand mould. This procedure was carried out for each heat cast, the heat number being stamped on the test-bar mould. The times of the receipt of steel in the foundry, the finish of the cast and the number of bombs per heat, were recorded. A plate was hung on the first and last boxes from each heat and these were removed by the heat checker in the stripping bay, who marked each bomb with the heat and serial number, as soon as the cope was removed. The bombs were identified by this number through all subsequent stages of manufacture.

The core bars were withdrawn by means of overhead air hoists, suspended from a monorail, approximately 2 min. after casting, and were placed on an overhead conveyor, which returned them to the core-bar wrapping station. The movement of the mould conveyor then carried the moulds into a fume tunnel where the fumes and gases were exhausted.

FIG. 20.—LOWERING HALF OF MOULDING BOX ON TO ONE OF THE JOLT KNOCK-OUT MACHINES.

FIG. 21.—CASTINGS BEING DISCHARGED AT EXIT END OF COOLING TUNNELS.

(*h*) *Stripping*

On emerging from the tunnel the castings were stripped in a bay provided with five 5-ton electric overhead travelling cranes. The first of these was used to take off the copes, an operation easily carried out by the use of a specially constructed lifting bale incorporating a pusher which exerted pressure on the castings as the box was lifted. The copes were placed on jolt grids, from which the sand fell on to an underground conveyor belt 150 ft. long, which extended for the whole length of the bay, and delivered the sand by way of an inclined belt 250 ft. long into the used sand storage hopper. The empty copes were then returned to the ramming station by a gravity conveyor which ran along the rear of the Sandslingers.

The castings were removed by two further cranes, and placed in specially constructed bogies for transfer through cooling tunnels, each bogie containing 4 pairs of castings. The remaining two cranes were used to place the drags on jolt grids from which the sand fell on to the underground belt previously referred to. The empty drags were afterwards transferred by crane to a gravity roller conveyor from which air hoists transferred them back to the Sandslingers for ramming.

Special attention was paid to the problem of dust extraction at the mould knockout by the provision of suction manifolds, just below the grids. These communicated by means of mild steel ducts, laid beneath the foundry floor, to a group of three fans with dust separation plant, which were housed in a separate

FIG. 22.—ONE OF THE COLD SAWS CUTTING OFF THE CASTING HEAD.

building adjoining the foundry. One fan and separator unit dealt with each knockout section, each fan being 6 ft. in diameter, and having a capacity of 25,000 cub. ft. per min. The dust, extracted at the knock-outs, was collected in storage hoppers, which discharged direct into railway wagons.

The stripped castings, which were placed in bogies in the stripping bay, were pushed through cooling tunnels, two of which were provided, by means of electrically operated screw-type pushers. The cooling tunnels accommodated a total of 50 bogies, and the hot air exhausted from them was conducted, through suitably arranged ducting, to the preheating zone of the core-drying stoves, thereby effecting a considerable reduction in the consumption of gas in this section.

Fettling and Inspection

On emerging from the tunnels, the castings were transferred to the core knock-outs, over which four 1-ton electric overhead travelling cranes were situated. Two of the cranes, one for each knock-out, were used to unload the bogies, which were then returned to the stripping bay for reloading. The bombs were inverted over the knock-out grids and the sand fell on a conveyor belt, which transferred it to a hopper outside the building for loading direct into railway wagons. The dust from this knock-out was extracted by a plant similar to that for the mould knock-out. There was, however, only one fan in this section with a capacity of 34,000 cub. ft. per min.

The bombs, in pairs, were then suspended on an endless-chain conveyor and passed through shot-blast cabinets for cleaning round the ingate. The conveyor was routed to pass the ingate cutting station where the bombs were removed by the third crane and laid on gantries. The ingate was cut off in 25 secs. by an oxy-acetylene burner, using a $\frac{1}{16}$-in. nozzle. Both oxygen and acetylene were piped to this point from a central plant outside the building.

After separation, the bombs were delivered by the remaining crane to an electrically operated transfer bogie, which distributed them to the gantries serving the head cutting-off machines.

Feeding Head Cut-off

For head removal, there were five cold saws, 36 in. dia., and four oxy-acetylene cutters with gear for rotating the bombs inside fixed burners. In the saws the bombs were stationary and the saw blade was moved forward by hydraulic power according to the feed required. The average time taken (floor to floor) was 4.4 min. in the cold saws and 3.75 min. by the use of the flame cutters.

(To be concluded.)

Notes from the Branches

Newcastle-upon-Tyne

The members of the branch, to the number of 70, including a small party from the Middlesbrough branch, paid a visit to the works of William Doxford & Sons, Limited, shipbuilders and engineers, Sunderland, on October 11, where they passed a very interesting and most instructive morning. They were received by the Works Manager, Mr. J. L. Botwright, and were first shown one of Doxford's world-renowned opposed piston oil engines of 3,500 i.h.p. running in the erecting shop previous to dismanlting for installation on board a 10,000-ton ship. The smooth running and easy control were most marked.

The party was then split up into groups and led by competent and informative guides through the various manufacturing departments, which gave a comprehensive idea of the important work carried out by Doxford's. During the tour members were able to see a similar engine to that they had seen running in the shops, installed on board the motor vessel "Pelayo," which will soon be ready for sea.

At the luncheon held afterwards in an hotel on the outskirts of Sunderland high appreciation was expressed on all sides of the interest aroused by what had been seen. The Middlesbrough Vice-President, Mr. J. H. D. Hobson, said how glad the Middlesbrough branch had been to be associated in this joint visit, which he hoped would only be the forerunner of more.

Institute Elects New Members

At a meeting of the Council of the Institute of British Foundrymen, held at the Grand Central Hotel, Weston-super-Mare, on October 18, 1947, the following were elected to the various grades of membership:—

FIRST LIST

As Subscribing Firm Members

William Rigley & Sons, Limited, Bulwell Forest, Nottingham, railway wagon builders and repairers (representative, J. A. Rigley); S. Russell & Company, Limited, Northcote Street, Walsall, grey and malleable ironfounders (representative, A. K. Kirk); F. Turnbull & Company (Engineers), Limited, Heaton Junction, Newcastle, 6, engineers and ironfounders (representative, H. N. Swales); Wilsons Forge (1929), Limited, Engineering Works, Bishop Auckland, Co. Durham, engineers and founders (representative, F. Garmonsway).

As Members

C. M. Barton, proprietor, Caddy & Company (Nottingham), Limited; H. Batty, manager, John T. Hardaker, Limited, Bradford; C. O. Boyd, B.Sc.(Eng.), sales engineer, Aluminium Company of S.A. (Pty.), Limited; A. H. Chatteris, foundry manager, Harper Phillips & Company, Limited; A. H. Fineberg, managing director, F. & M. (Krugersdorp) (Pty.), Limited; A. N. Galloway, foundry manager, Newman Industries, Limited, Bristol; H. A. Godwin, metallurgist, African Malleable Foundries, Limited, Benoni; T. Holland, assistant foundry superintendent and metallurgist, Imperial Foundry, Limited, Leamington; C. C. Jenkins, L.I.M., assistant foundry manager, R. Thomas & Baldwins, Limited; H. Edge, foundry superintendent, Humber, Limited, Coventry; G. G. Pratt, A.M.I.Mech.E., chief engineer, Harper Phillips & Company, Limited, Grimsby; H. Roberts, junior director, Fordath Engineering Company, Limited, West Bromwich; L. G. B. Russell, general manager, Russell Manufacturing Company Pty., Limited, Victoria, Australia; B. Sen, B.Sc., foundry foreman, Burn & Company, Limited, Calcutta; A. Short, deputy foundry manager, Rolls-Royce, Limited, Derby; F. J. Bullock,* chief engineer, National Chemical Products, Germiston, S.A.; J. H. Peers,* foundry superintendent, African Malleable Foundries, Benoni; S. A. Wilson,* foundry manager, Globe Engineering Works, Cape Town; J. Whitehouse, representative, Darby & Company, Brmingham; G. F. Croft, foundry superintendent, Tyne Metal Company, Limited, Newcastle.

As Associate Members

L. Barnett, patternmaker, International Combustion, Derby; A. H. Bevan, mould supervisor, Guest, Keen & Baldwins, Limited, Newport; M. D. Biswas, castings inspector, Tatanagar Foundry Company, Limited; W. R. Dobing, chargehand patternmaker, F. Turnbull & Company, Newcastle; D. Hobday, assistant metallurgist, Ley's Malleable Castings Company, Limited, Derby; S. Hughes, assistant metallurgist and chemist, Hale & Hale (Tipton), Limited; T. M. Miller, foundry foreman, J. Wright & Company, Limited, Birmingham; M. Mongued, B.Sc., technical engineer, The Delta Trading Company, Cairo; F. E. Munns, technical representative, The Coventry Radiator & Presswork Company, Limited; V. N. Bhide, B.Sc.(Hons.), student, Brockhouse Castings, Limited, Wolverhampton; J. E. Pearce, moulder, Prima Steel Foundry, Benoni, South Africa; G. M. Price, coreshop superintendent, C. & B. Smith, Limited, Wolverhampton; E. T. E. Rack, ironmoulder, Harper & Phillips, Limited, Grimsby; J. B. Robertson, patternmaker, Davison & Company, Newcastle; E. N. Smith, works engineer and metallurgist, Foundry & Engineering Company, Limited, West Bromwich; T. Spencer, foreman moulder, F. Turnbull & Company, Newcastle; J. R. Stayt, contract engineer, African Malleable Foundries, Limited, Benoni, South Africa; L. J. Timmins, analytical chemist, Ley's Malleable Castings Company, Limited, Derby; E. H. Trueman, foundry foreman, John Wright & Company, Limited, Birmingham; G. J. Whitehead, foreman moulder, Tyne Metal Company, Limited, Newcastle; R. W. Turnbull,† assistant foundry foreman, Crookhall Foundry, Co. Durham.

As Associates (over 21)

E. E. Ashdown, pupil engineer, Alloy Diecast Company, Johannesburg; A. E. Baggaley, progress clerk, C. A. Parsons & Company, Limited, Gateshead; T. D. Chamberlain, cost accountant, Harrison & Company, Limited, Lincoln; G. V. Jones, assistant metallurgist, Glanmor Foundry, Limited, Llanelly; B. A. Preston, apprentice patternmaker, Benoni Engineering Works, South Africa; A. G. Thomson, editor, "Engineer and Foundryman," Johannesburg; J. M. Williamson, progress clerk, Sir W. G. Armstrong Whitworth (Ironfounders), Limited, Gateshead; J. D. Wilson, student, African Malleable Foundries, Ltd., Benoni.

As Associates (under 21)

P. A. James, apprentice moulder, Dunswart Iron & Steel Works, Benoni, South Africa; A. J. Kruger, apprentice patternmaker, Benoni Engineering Works; A. S. Muller, apprentice moulder, Benoni Engineering Works; C. J. G. O'Neill, apprentice moulder, Gearings, Limited, Cape Town; D. W. R. Spence, foundry apprentice, Butterley Company, Limited, Derbyshire; D. J. van Schalkwyk, apprentice moulder, Gearings, Limited, Cape Town.

SECOND LIST

As Subscribing Firm Members

Duport Foundries, Limited, Dudley Port, Staffs, ironfounders and engineers (representative, D. C. Jinks); Machinefabriek Gebr. Stork & Company, N.V., Hengelo-Holland, Industrieplein 3, ironfoundry and general engineering works (representative, J. W. Overweg).

(To be concluded.)

*Transferred from Associate Member.
†Transferred from Associate.

Personal

MR. WILLIAM MURE has been elected to the board of Consolidated Tin Smelters, Limited.

MR. STANLEY PARKES and MR. W. T. JAMES have been appointed to the board of the British Automatic Company, Limited.

MR. K. A. E. MOORE has resigned from the board of Jonas Woodhead & Sons, Limited, spring manufacturers, of Leeds.

MR. ALLPRESS H. RUSTON, a director of the Catchpole Engineering Company, Limited, Bury St. Edmunds, is to be the next Mayor of Huntingdon.

MR. G. H. HALE has taken up an appointment as assistant foundry manager with Frederick Newman & Company, Limited, Lever Street, Wolverhampton.

MR. J. B. BLAKEBOROUGH has been appointed to the board of Alley & Maclellan, Limited, ironfounders, manufacturers of engineers' compressors, etc., of Glasgow.

MR. A. DOWNING, ship inspecting officer for the Ministry of Transport, has been appointed joint manager of Brigham & Cowan, Limited, shiprepairers and engineers, of South Shields.

MR. JOHN C. MILLS, who left the Zinc Alloy Rust-Proofing Company, Limited, Rochdale, in 1946, has now resumed active participation in the business at Wolverhampton, and has been re-elected a director.

SIR JOHN S. BOYD is to serve as a member of the National Insurance Advisory Committee. He is vice-president of the Shipbuilding Employers' Federation and was secretary of that body from 1927-31.

MR. WILLIAM TODD, who, as stated in our last issue, has severed his connection with the Parkinson Stove Company, Limited, has been appointed works manager to the Simplex Electric Company, Limited, Oldbury, Worcs.

DR. H. R. WRIGHT has completed 21 years as managing director of Siemens Bros. & Company, Limited, electrical engineers, of Woolwich, London, S.E.18. Dr. Wright, who is also chairman of the company, received a presentation at a luncheon given in his honour to mark the occasion.

MR. P. A. JOB has retired from the position of general works manager of the Llanelly Steel Company (1907), Limited, after 47 years' service with the company. He will remain a member of the board in a consultative capacity. As reported in an earlier issue, MR. CYRIL CROXFORD has been appointed general works manager.

MR. HAROLD E. SHEARDOWN, chairman of Charles D. Holmes & Company, Limited, engineers, ironfounders, etc., of Hull, has been elected chairman for 1947-48 of the National Association of Marine Enginebuilders. MR. H. FERRIER, managing director of Rankin & Blackmore, Limited, marine engineers, etc., of Greenock, is the new vice-chairman.

MR. LESLIE WALTON has relinquished the chairmanship of Vauxhall Motors, Limited, after 40 years' service on the board of the company. He is succeeded by MR. GUY NICHOLAS VANSITTART, a brother of Lord Vansittart, who is already on the board of the company. He is a director of Delco-Remy & Hyatt, Limited, manufacturers of ball and roller bearings, etc., of Dunstable, Beds, and other companies.

DR. CHARLES ALFRED EDWARDS, F.R.S., who has been awarded the honorary degree of LL.D. by the University of Wales, has been Principal since 1927 and Professor of Metallurgy since 1920 of University College, Swansea. He recently retired from the principalship of the College. After being lecturer in metallurgy at Manchester University from 1907-10, Dr. Edwards became metallurgist with Bolckow, Vaughan & Company, Limited, and Dorman, Long & Company, Limited, returning to Manchester University as Professor of Metallurgy in 1914. He is the author of numerous publications dealing with the properties of metals and alloys.

Will

CHAMBERS, C. F., a director and secretary of W. H. Baxter, Limited, engineers and ironfounders, etc. of Leeds £8,428

New Patents

The following list of Patent Specifications accepted has been taken from the "Official Journal (Patents)." Printed copies of the full Specifications are obtainable from the Patent Office, 25, Southampton Buildings, London, W.C.2, price 1s. each. The numbers given are those under which the Specifications will be printed, and all subsequent proceedings will be taken.

592,152 ALLMANNA SVENSKA ELEKTRISKA AKTIEBOLAGET, and DREYFUS, L. Electric induction furnaces with iron cores.

592,159 WHITTAKER, W., and WORTHINGTON, J. W. Forced-draught apparatus for boiler and other furnaces.

592,182 METROPOLITAN-VICKERS ELECTRICAL COMPANY, LIMITED, and BAILEY, R. W. Method and means of treating metal forgings and castings of annular form.

592,194 BROOM & WADE, LIMITED, and HAUSFELDER, L. Vane pumps, blowers, and motors.

592,287 CONEYGRE FOUNDRY, LIMITED, and SHEEHAN, J. J. Cylinder blocks of internal-combustion engines.

592,551 SWINDIN, N. Process of and means for continuously purifying and concentrating acid pickle liquors for the treatment of iron and steel.

592,598 ENGLISH ELECTRIC COMPANY, LIMITED, and BARLOW, K. F. Cooling of welding or heating electrodes.

592,687 COLBERT, W. H., and WEINRICH, A. R. Method of coating articles by evaporation and deposition of metals.

592,693 COLBERT, W. H., and WEINRICH, A. R. Method of coating articles by evaporation and deposition of metals.

Obituary

MR. JOSEPH O. CLYNE, who had been on the staff of Metropolitan-Vickers Electrical Company, Limited, for 47 years, died on October 22 at the age of 65.

MR. ERNEST H. SALMON, proprietor of Clark & Standfield, floating dock engineers, of Victoria Street, London, S.W.1, died on October 21. He was 67 years of age.

MR. CHARLES NEILL, formerly with Workman Clark, Limited, shipbuilders, of Belfast, has died at Newton Centre, Massachusetts. At the time of his death, Mr. Neill was chief engineer of the United Fruit Company.

MR. HENRY WILLIAM FERDINAND BOLCKOW, chairman and joint managing director of Warner & Company, Limited, refined pig-iron makers, of Middlesbrough, and a director of the North-Eastern Electric Supply Company, Limited, died on October 21 at the age of 82. He was a grand-nephew of the late Mr. H. W. F. Bolckow, pioneer of the Cleveland iron trade, and first chairman of Bolckow, Vaughan & Company, Limited, who were acquired by Dorman, Long & Company, Limited, in 1929.

Work of the Ministry of Labour

A Report on the work of the Ministry of Labour and National Service covering the years 1939-46 was presented to Parliament recently by Mr. G. A. Isaacs, the Minister. Part I of the Report opens with a brief summary of the mobilisation of man-power for the prosecution of the war, Part II deals with the demobilisation and re-allocation of man-power from mid-1945 to the end of 1946, while the third section of the Report deals with the other work of the Ministry. Chapters are devoted to activities in connection with disabled persons, juvenile employment, unemployment insurance, conciliation and arbitration, statutory wage-fixing machinery, labour statistics, international labour relations, consultation with advisory bodies, and changes in the organisation of the Ministry brought about by the war.

The Report (Cmd. 7225) is obtainable from H.M. Stationery Office, price 7s. net.

ASSOCIATED BRITISH OIL ENGINES, LIMITED, have reorganised their sales staffs and four divisional sales managers, each with a team of sales engineers, have been appointed. They are:—Mr. R. Hunter (marine engines); Mr. E. L. Brooks (heavy engines); Mr. R. F. Norris (medium engines); and Mr. J. C. Gale (small engines).

A FACTORY OWNED by George Wilson Gas Meters, Limited, Coventry, is the first to be completed on the Bede Estate, Jarrow, and was officially opened on November 1. Another gas-meter factory to be opened on the estate shortly will be for Wilmet, Limited, a combination of George Wilson Gas Meters, Limited, and Metropolitan Gas Meters, Limited, Nottingham.

U.S. Awards for British Technicians

Design-for-Progress Programme

Awards from the $200,000 Design-for-Progress programme arranged by the James F. Lincoln Arc Welding Foundation, of America, have recently been announced. British technicians who have received cash prizes for their Papers include:—Mr. A. M. Clark, Mr. J. Loughray and Mr. W. D. Garrick, of Yarrow & Company, Limited, shipbuilders and engineers, of Glasgow, $2,000; Mr. C. B. M. Dale, of the Brush Electrical Engineering Company, Limited, Loughborough, Leics, $1,500; Mr. H. B. Fergusson and Mr. E. F. Burford, of G. A. Harvey & Company (London), Limited, sheet-metal workers, and Mr. R. V. Rowles and Mr. N. A. Graveson, of Fielding & Platt, Limited, manufacturers of hydraulic pumps, etc., Gloucester, $700; Mr. A. T. Neath and Mr. J. Stokes, of Ransomes & Rapier, Limited, engineers and ironfounders, of Ipswich, $500; Mr. E. W. Gallimore, of James Cruickshank, Limited, bakery engineers, of Edinburgh; Mr. A. Scott and Mr. E. McMinn, of Stewarts and Lloyds, Limited, Glasgow, $250; Mr. A. Reid, Mr. J. Duncan and Mr. W. Caddell, of the Colville Constructional Company, Limited, Glengarnock, $250; Mr. J. L. Coltman, of the Grantham Boiler & Crank Company, Limited, $100; Mr. L. O. Mellor, of the Sheepbridge Coal & Iron Company, Limited, Chesterfield, $100; Mr. G. Dunn, of W. & T. Avery, Limited, manufacturers of weighing machines, etc., of Birmingham, $100; Mr. A. Hamilton, of Vickers-Armstrongs, Limited, Westminster, London, S.W.1, $100; Mr. E. F. Gill, of the Diamond Blower Company, Limited, Willesden, London, N.W.10, $100; and Mr. J. H. White, of John Brown & Company, Limited, Clydebank, $100.

Engineering Industry's Export Target

Mr. A. G. Bottomley, Secretary for Overseas Trade, told representatives of engineering undertakings in London last week that their industry was being asked to attain an export target of £42 million a month by mid-1948 and £48 million a month by the end of 1948. These targets represented 230 per cent. and 270 per cent., respectively, of 1938 and would, if attained, cover nearly a third of the total export target. He said that the engineering industry would probably get a larger quantity of steel as a result of the Government's £200,000,000 cut in capital expenditure.

Industry and Research

A report published by the Federation of British Industries Industrial Research Secretariat reveals that British industry is annually spending about £30 million on research and development within its own establishments. Three out of five of the firms in a survey estimated to cover 75 per cent. of the nation's total industrial effort plan to expand their research activities.

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Thickness	3¾ inches

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THE STANTON IRONWORKS COMPANY LIMITED NEAR NOTTINGHAM

News in Brief

PLANT COSTING £20,000 is being installed by the Consett Iron Company, Limited, to prevent pollution of the River Derwent.

THE TANKER Rosewood (14,000 tons) built by Sir James Laing & Sons, Limited, Sunderland, is stated to be the biggest ship completed on the Wear to date.

A BOARD OF TRADE announcement states that as from October 28 fluorspar can only be imported on individual licence. Imports have hitherto been unrestricted.

THE FORD MOTOR COMPANY, LIMITED, Dagenham, have installed the first mass radiography service to be established in a factory in Great Britain. The 14,000 employees will have the opportunity of being X-rayed to help discover tuberculosis in its very earliest stages.

MR. W. M. NEAL, chairman and president of the Canadian Pacific Railway, who recently completed a short visit to the West of Scotland, said that shipbuilding costs had reached such a high level that they as businessmen simply could not afford to pay them.

THE MINISTRY OF TOWN AND COUNTRY PLANNING has turned down an appeal by 170 residents of Scunthorpe against the approval of the Town Council being given to an expansion scheme proposed by John Lysaght, Limited, ironmasters, etc., at their Normanby Park Works.

EIRE IMPORTS of iron and steel in July last were as follow:—Pig-iron, 572 tons, valued at £17,171, against nil in July, 1946; iron bars and rods, 80 tons (£2,708), against 21 tons (£573); steel bars and rods, 1,909 tons (£69,880), against 205 tons (£4,851); iron and steel squares and flats, 281 tons (£9,996), against 416 tons (£11,251).

A SEVENTH AND FINAL SECTION to be added to the floating dock built for a Stockholm firm by the Furness Shipbuilding Company, Limited, Haverton Hill-on-Tees, Co. Durham, last year, was delivered in Stockholm last month. The lifting capacity of the dock, which in its original form was 7,500 tons, will now be increased to 9,000 tons.

DAVY & UNITED ENGINEERING COMPANY, LIMITED, Sheffield, are reported to have received an order for the mechanical equipment for a cold-steel rolling mill to be built in New South Wales for Commonwealth Rolling Mills, a unit of John Lysaght (Australia), Limited, Electrical equipment will be supplied by Metropolitan-Vickers Electrical Company, Limited, Manchester.

A PLACING IS TO be effected shortly of 4s. shares in Smith, Patterson & Company, Limited, manufacturers of iron castings, railway chairs, etc., of Blaydon-on-Tyne. Application is being made to the Council of the London Stock Exchange and the Committee of the Newcastle Stock Exchange for quotation for the whole of the issued capital of the company, consisting of 575,000 shares of 4s. each.

THE HUNSLET ENGINE COMPANY, LIMITED, has received an order from the Crown Agents for the Colonies for seven 48½-ton 0-8-0T locomotives for the Nigeria Railways. This order is in addition to that for 16 locomotives of this type already in hand. The company has also received an order from the Consett Iron Company, Limited, for two 300-b.h.p. standard-gauge straight Diesel locomotives.

THE ANNUAL CONVENTION of the manufacturers of Meehanite castings, conducted under the auspices of the Meehanite Metal Corporation, is being held at Cleveland, Ohio, on November 6, 7 and 8. Management and production officials of the 42 Meehanite foundries in the United States and Canada will attend the meeting as well as representatives from some of the foreign organisations. About 50 Papers on various foundry production, management and sales problems will be presented.

TUBE INVESTMENTS, LIMITED, are offering to the 25,000 operatives employed in the works of subsidiary and associated companies a scheme of pensions and life assurance, to start from December 1 next. A similar scheme already exists for staff. The company will subscribe over half of the weekly payments for each pension. Tube Investments are making a further payment, estimated at between £600,000 and £750,000, to secure benefits for past service by employees without their subscribing for the years before the scheme started, while the company will also bear the whole cost of the life assurance.

Gazette

F.N. ENGINEERS, LIMITED, is being wound up voluntarily. Mr. G. E. Crone, St. Paul's Chambers, Whitley Bay, is the liquidator.

B.C.R. ENGINEERING, LIMITED, is being wound up voluntarily. Mr. A. S. Kennard, 67A, Queen Street, Newton Abbot, is the liquidator.

ELLACOTT ENGINEERING COMPANY, LIMITED, is being wound up voluntarily. Mr. W. E. Moore, 19, Paradise Square, Sheffield, is the liquidator.

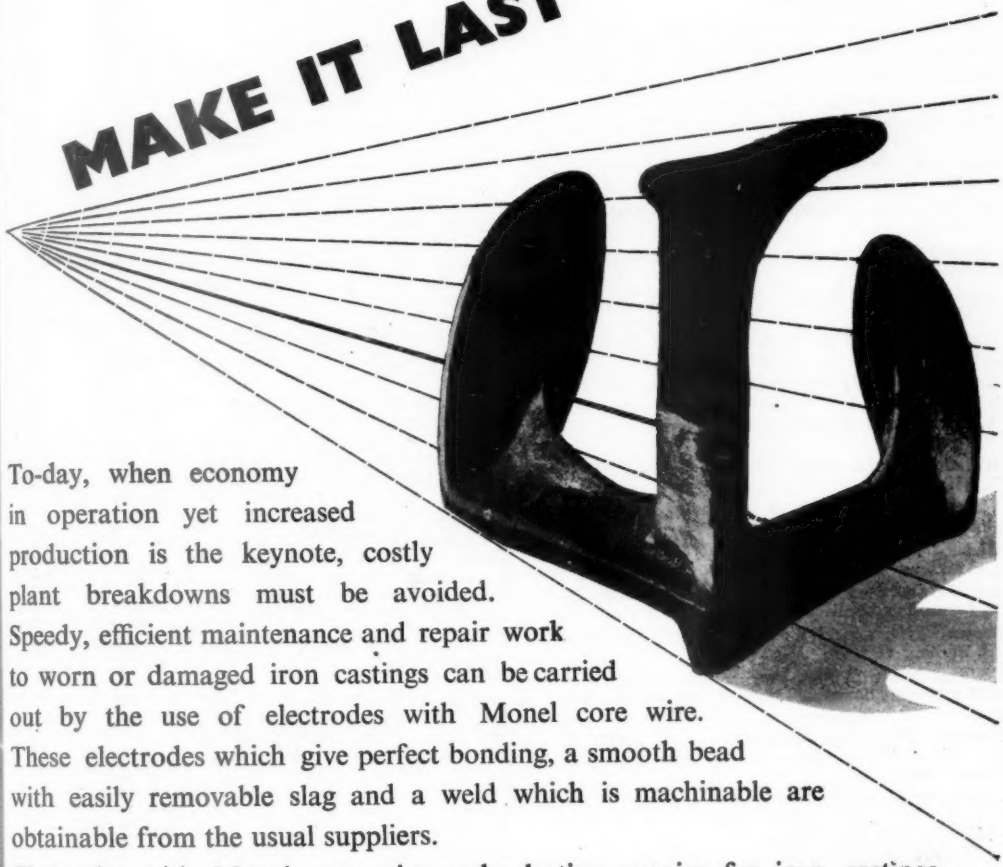
SUPREME WELDING & ENGINEERING COMPANY, LIMITED, is being wound up voluntarily. Mr. Hamilton Kerr, 20, Crosby Road North, Waterloo, Liverpool, is the liquidator.

RODENSIDE ENGINEERING & MANUFACTURING COMPANY, LIMITED, is being wound up voluntarily. Mr. L. R. Binns, 4, Broad Street Place, London, E.C.2, is the liquidator.

SOWERBUTTS & WATSON, LIMITED, manufacturers of bright bolts and nuts, of Accrington, Lancs, is being wound up voluntarily. Mr. J. P. Wood, 7, Grimshaw Street, Burnley, is the liquidator.

W. SHAW & COMPANY, LIMITED, steelfounders, of Middlesbrough, is being wound up voluntarily for the purposes of reconstruction. Mr. T. C. Squance, 26, John Street, Sunderland, is the liquidator.

MAKE IT LAST



To-day, when economy in operation yet increased production is the keynote, costly plant breakdowns must be avoided. Speedy, efficient maintenance and repair work to worn or damaged iron castings can be carried out by the use of electrodes with Monel core wire. These electrodes which give perfect bonding, a smooth bead with easily removable slag and a weld which is machinable are obtainable from the usual suppliers.

Electrodes with Monel core wire make lasting repairs for iron castings.

Henry Wiggin and Company Limited

Wiggin Street, Birmingham, 16

Company News

(Figures for previous year in brackets.)

Meters—Interim dividend of 4% (same).

Inbucon—Interim dividend of 2% (same).

Dowding & Mills—Dividend of 100% (50%).

Barton & Sons—Interim dividend of 3% (same).

G. & J. Weir—Interim dividend of 10% (same).

Thomas Blackburn & Sons—Dividend of 10% (9%).

John Booth & Sons (Bolton)—Interim dividend of 10%.

Revo Electric Company—Interim dividend of 5% (same).

British Electric Traction—Interim dividend of 15% (same).

Pressed Steel Company—Interim dividend of 10% (same).

Burco—Dividend of 35% (dividend of 20% and bonus of 15%).

Richard Johnson & Nephew—Interim dividend of 5% (3½%).

Cakebread, Robey & Company—Interim dividend of 5% (same).

A. E. Jenks & Cattell—Second interim dividend of 2½% (same).

William Asquith—Final dividend of 10%, making 15% (10%).

George M. Callender & Company—Dividend of 24.466% (15%).

Richard Hill & Company—Final dividend of 15% (5%), making 20% (8%).

Smith's Stamping Works (Coventry)—Dividend of 10% (same and bonus of 2½%).

Brown Bayley's Steel Works—Final dividend of 8% (5%), making 12% (10%), tax free.

Crabtree Electrical Industries—Final dividend of 5% (same) and cash bonus of 7½% (same), making 17½% (same).

Pickford, Holland & Company—Final dividend of 10%, making 17½%. The company was made public in March last.

Carrier Engineering Company—Net profit for the year ended June 30, £135,965 (£129,171); to taxation, £29,918 (£45,466); dividend of 35% (same); staff pensions, £10,000; forward, £187,013 (£153,030).

Martin Bros. (Machinery)—Net profit to June 30, after tax, etc., £13,825 (£6,501); to reserve for future taxation, £2,000 (£1,000); dividend of 12½% (same) and bonus of 5% (nil); forward, £32,597 (£27,991).

Wolverhampton Metal Company—Interim dividend of 20% (15%) on account of the year to March 31, 1948. The increased dividend should not be taken necessarily to imply an increase in the total distribution for the year.

W. R. Sykes Interlocking Signal Company—Profit for the year to April 30, after depreciation, taxation, etc., £4,925 (£4,817); to special reserve, £720 (£121); dividend of 6% (same) and bonus of 6% (same) on the cumulative "A" preferential shares; forward, £16,738 (£13,488).

Steel Nut & Joseph Hampton—Net surplus, before tax, for the year to August 2, £60,466 (£5,357); to tax, £29,200 (£13,950); general reserve, £45,303 (£10,000); provision against decline in stock values, nil (£3,000); deferred repairs, nil (£12,369); dividend of 15% and bonus of 5% (15%); forward, £22,362 (£20,635).

Herbert Morris—Profit for the year ended July 31, £149,401; interest and dividends received, £7,361; transfer fees, £53; to directors' fees, £400; depreciation, £24,692; general reserve, £10,000; final dividend of 15% (same) and bonus of 2% (same), both tax free, making 22%, tax free (same); forward, £83,056 (£79,189).

Betts & Company—Net profit for the year to June 30, after crediting dividend from French subsidiary for the 18 months to date, £30,498 (loss £1,185); final dividend of 7½%, making 10% and special dividend of 5% as compensation for period during which no dividend was paid; to general reserve, £6,254; forward, £10,832.

Falk, Stadelmann & Company—Net profit to March 31, after tax, etc., £151,770 (£94,003); profit on sale of securities, £4,065 (£1,020); sub-contracts reserve not required, nil (£13,000); to contingencies reserve, £35,000 (£10,000); interim dividend of 10% and bonus of 5%, making 15% (10%); pension fund, £5,000 (£3,000); forward, £51,013 (£53,303).

Lightalloys—Profit and transfer fees to June 29, £9,183 (£19,091); to directors' fees, £1,800 (same); depreciation, £6,188 (£5,955); net profit, £1,195 (£11,336); estimated recovery of E.P.T., £15,000 (£26,500); balance of E.P.T. recovery in respect of 1945-46, £3,287 (nil); taxation, £7,500 (£17,000); final dividend of 10% (12½%), making 15% (20%); forward, £22,851 (£20,769).

Serck Radiators—Net profit for the period from August 4, 1946, to August 2, 1947, after taxation, depreciation, etc., £82,504 (£68,569); tax provision no longer required, including E.P.T. deficiency adjustment, £22,000 (£20,000); dividend of 25% (same) and special bonus of 5% (nil); general reserve, £50,000 (same); contingencies reserve, £10,000 (nil); forward, £40,538 (£29,034, after deducting increased remuneration of £500 voted to the directors).

Braithwaite & Company Engineers—Trading profit for the year ended March 31, £130,811 (£129,859); dividend from Braithwaite & Company (India), £13,037 (£11,796); fees and interest, £35 (£41); interest on tax certificates, £695 (£1,428); provision for war damage not required, £309 (nil); to pension fund, £3,666 (£4,818); depreciation, £16,741 (£15,707); additional provision for deferred repairs, £27,414 (£10,000); taxation, £60,000 (£85,000); net profit, £37,066 (£27,599); to directors' fees, £1,600 (£1,000); final dividend of 3½% (4½%), making 7½% (same); forward, £61,904 (£41,611).

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Raw Material Markets

Iron and Steel

Since midsummer, a substantial expansion of pig-iron production has been achieved, but almost all the increased output is being absorbed by the steelworks. Production of high-phosphorus iron, which is now concentrated almost wholly in the Northants and Derbyshire districts, still falls substantially short of the requirements of the light-castings trade, and the deficiency is accentuated by the shortage of cast-iron scrap. Foundry-coke supplies are reasonably good, but outputs of light castings could be substantially increased if more pig-iron were available. Engineering foundries are quite well placed, since they are not compelled to rely solely on one particular grade of pig-iron. Their needs, however, are substantial and the scarcity of low- and medium-phosphorus iron is certainly inconvenient.

Deliveries of semi-finished steel were on a rather better scale in October, but. even so, the operation of the mills has been subject to interruptions. There is still a shortage of mild-steel billets and sheet bars, and buyers are keen to acquire any other re-rolling material in the form of defective billets and blooms, sheet bars, crops, etc.

Although it is evident that a full-scale revision of the authorisation system will mean further cuts in the allocations to many home consumers, most of the works have orders in hand far in excess of their capacity and, therefore, a re-adjustment will be welcome. Plate mills are working to capacity, but can make little impression on their backlogs, and there is an overwhelming demand for railway and colliery equipment. Maximum outputs of small bars, light sections, wire and strip are eagerly taken up, and the sheet mills are committed as far ahead as the end of Period II of next year.

Non-ferrous Metals

Although the possibilities of export trade in copper are slight, consumption of the metal in the United Kingdom is at a satisfactory rate, and it seems that consumers will take up all supplies that the Ministry of Supply are likely to import. The securing of base metals by America for strategic stockpiles has caused the United States domestic-market quotations for copper to stiffen and, accordingly, there is nothing offering on the international market at less than 21.50 cents per lb., f.a.s. New York.

Considerable interest is being shown by U.K. tin consumers in the negotiations between America and Bolivia regarding the price of Bolivian exports of tin concentrates to the United States in 1948. British consumers are fully aware that the price paid by their American counterparts under this contract may play a considerable part in determining the world price of tin. This is due to the fact that the British Government will have to acquiesce to any increase in price for supplies of tin concentrate from Bolivia, which, in turn, may influence Colonial tin producers' quotations.

Although the lead supply position is easier than it was earlier in the year, there is a considerable leeway to be made up before a satisfactory level is reached from the point of view of importing countries. Despite signs of a firmer trend in the American domestic market, probably due to stockpiling activities, the world price is still quoted at 14.25 cents per lb., f.a.s. New York.

New Companies

("Limited" is understood. Figures indicate capital. Names are of directors unless otherwise stated. Information compiled by Jordan & Sons, 116, Chancery Lane, London, W.C.2.)

Minories Engineering Company, 119, Factory, First Avenue, Team Valley Trading Estate, Gateshead-on-Tyne—£10,000. R., W. and D. Rankin.

Martin Brown Industries, 14, Bennetts Hill, Birmingham—Manufacturers of metals and alloys, etc. £1,000. R. W. Martin and C. M. Brown.

Hollands Engineering Works, Holland Works, Avon Street, Sparkhill, Birmingham—£3,000. A. A., J. A. and W. M. Holland, and A. Longmore.

Charles Iles & Gomms, 138, Highgate Street, Birmingham—Stampers, piercers and engineers, etc. £15,000. A. E., D. E. and A. B. Cox, and C. E. Iles.

Vicary & Penlington, The Forge Garage, Mill End, Kenilworth—Manufacturers of agricultural machinery, etc. £2,000. O. M. Vicary, J. Penlington and J. Farquharson.

Spry & Holman, Melrose Avenue, Clifton, Bristol—Engineers, machinery manufacturers, etc. £10,000. J. H. Caramel, R. T. Kerrison, W. Harding, and T. H. F. Holman.

Death of Mr. W. J. Rees

Mr. W. J. Rees died at his home at Llanelly on October 30. He was in his 83rd year. Mr. Rees retired from the managing directorship and chairmanship of the Glanmor Foundry Company, Limited, in 1942, retaining his seat on the board until 1946 and remaining a director of the parent company, the Glanmorfa Foundry & Engineering Company, Limited, up to the time of his death. He had been connected with the management of the company for over 52 years. He was associted with the formation of the Roll Makers' Association, and the then General Steel Castings Association and Heavy Steel Castings Association, while he was a past-president of the Welsh Engineers' and Founders' Association.

Paper for Technical Publications

Mr. Harold Wilson, President of the Board of Trade, announced in the House of Commons last Thursday that steps were being taken to ensure to journals devoted primarily to original research their full requirements. He hoped to exempt technical periodicals from the reduction which it was necessary to make in the paper available for periodicals generally.